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No. **2**

Financial Management

ST-1

a.

Year	Stock A				Srock B				Weighted Avg. Return
	R	Weight	(R- \bar{R})	(R- \bar{R}) ²	R	Weight	(R- \bar{R})	(R- \bar{R}) ²	
1	-18%	50%	-0.3	0.09	-24%	50%	-0.36	0.1296	-21.00%
2	44%	50%	0.32	0.1024	24%	50%	0.12	0.0144	34.00%
3	-22%	50%	-0.34	0.1156	-4%	50%	-0.16	0.0256	-13.00%
4	22%	50%	0.1	0.01	8%	50%	-0.04	0.0016	15.00%
5	34%	50%	0.22	0.0484	56%	50%	0.44	0.1936	45.00%
				0.3664					0.3648
									60.00%

Stock A:	Stock B:
$\bar{R} = 60/5 = 12.00\%$	$\bar{R} = 60/5 = 12.00\%$
$\sigma^2 = 1.3664/(5-1) = 0.0916$	$\sigma^2 = 3648/(5-1) = 0.0912$
SD (σ) = 30.27%	SD (σ) = 30.20%

Avarage Return for both Stocks are equal to 12%

As the weight of each srock is 50% then the Avarage Return for the Portfolio is 12%

b.

$$SD(A) = 30.27\%$$

$$SD(B) = 30.20\%$$

$$R_{AB} = 0.80$$

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \sigma_A \sigma_B R_{AB}}$$

$$\sigma_P = \sqrt{0.0823}$$

$$28.68\%$$

c. 0.80

d. σ_P would remain consitant

ST-2

Business	Weight	Beta	Weighted Beta
Electric Utility	60%	0.7	0.42
Cable Company	25%	0.9	0.225
Real State	10%	1.3	0.13
Int./Special Projects	5%	1.5	0.075

a. $\text{Beta} = 0.6 \cdot 0.7 + 0.25 \cdot 0.9 + 0.1 \cdot 1.3 + 0.05 \cdot 1.5 = 0.85$

b. $\text{RRR} = 6\% + 5\% \cdot 0.85 = 10.25\%$

Financial Management

c.

Business	Weight	Beta	Weighted Beta
Electric Utility	50%	0.7	0.35
Cable Company	25%	0.9	0.225
Real State	10%	1.3	0.13
Int./Special Projects	15%	1.5	0.225

$$\text{Beta} = 0.6 \times 0.7 + 0.25 \times 0.9 + 0.1 \times 1.3 + 0.05 \times 1.5 = 0.93$$

$$\text{RRR} = 6\% + 5\% \times 0.85 = 10.65\%$$

6-1

Investment	Weight	Beta	Weighted Beta
A 35000	46.67%	0.8	0.37
B 40000	53.33%	1.4	0.75
Total: 75000			1.12

$$\text{Beta} = 1.12$$

6-2

$$\begin{aligned} \text{RFR} &= 6\% & \text{Rm} &= 13\% & \text{Beta} &= 0.7 \\ \text{RRR} &= 6\% + (13\% - 6\%) \times 0.7 = 10.90\% \end{aligned}$$

6-3

$$\begin{aligned} \text{RFR} &= 5\% & \text{Market Risk Premium} &= 6\% & \text{Beta} &= 1.2 \\ \text{Rm} &= 5\% + 6\% = 11\% \\ \text{RRR} &= 5\% + 6\% \times 1.2 = 12.2\% \end{aligned}$$

6-4

Economic Status	Probability	Return	P X R	R- \bar{R}	$(R- \bar{R})^2$	$(R- \bar{R})^2 \times P$
Weak	0.1	-50%	-0.05	-61.40%	0.376996	0.0376996
Below Average	0.2	-5%	-0.01	-16.400%	0.026896	0.0053792
Average	0.4	16%	0.064	4.600%	0.002116	0.0008464
Above Average	0.2	25%	0.05	13.600%	0.018496	0.0036992
Strong	0.1	60%	0.06	48.600%	0.236196	0.0236196
$\bar{R} = 11.40\%$						0.0712

$$\begin{aligned} \sigma^2 &= 0.0712 \\ \text{SD } (\sigma) &= 26.69\% \\ \text{CV} &= \text{Risk} / \text{Expected Rate of Return} = 2.34 \end{aligned}$$

Financial Management

6-5

Market

Probability	Return	P X R	R- \bar{R}	$(R- \bar{R})^2$	$(R- \bar{R})^2 \times P$
0.3	15%	0.045	1.50%	0.000225	6.75E-05
0.4	9%	0.036	-4.500%	0.002025	0.00081
0.3	18%	0.054	4.500%	0.002025	0.0006075
$\bar{R} = 13.50\%$					0.0015

SD (σ) = 3.85%

CV = 0.29

Stock J

Probability	Return	P X R	R- \bar{R}	$(R- \bar{R})^2$	$(R- \bar{R})^2 \times P$
0.3	20%	0.06	8.40%	0.007056	0.0021168
0.4	5%	0.02	-6.600%	0.004356	0.0017424
0.3	12%	0.036	0.400%	0.000016	4.8E-06
$\bar{R} = 11.60\%$					0.0039

SD (σ) = 6.22%

CV = 0.54

6-6

- a. Beta = $(RRR-RFR)/(R_m-RFR) = (12-5)/(10-5) = 7/5 = 1.4$
b. $RRR = 5 + (10 - 5) \times 1.4 = 15\%$

6-7

- a. $RRR = 9 + (14 - 9) \times 1.3 = 16\%$

- b. If RFR = 10%:

MRP = 5

$R_m = 10 + 5 = 15\%$

$RRR = 10 + 5 \times 1.3 = 16.5\%$

If RFR = 8%:

MRP = 5

$R_m = 8 + 5 = 13\%$

$RRR = 8 + 5 \times 1.3 = 14.5\%$

- c. If $R_m = 16\%$:

$RRR = 9 + (16 - 9) \times 1.3 = 18.1$

If $R_m = 13\%$:

$RRR = 9 + (13 - 9) \times 1.3 = 14.2$

Financial Management

6-8

Stock	Weight	Beta	Weighted beta
A	95%	1.12	1.07
B	5%	1	0.05

Beta = 1.12

Beta for 95% o Stocks = $1.12 - 0.05 = 1.07$

Using the Beta calculated and the beta for the newly added stock:

Stock	Weight	Beta	Weighted beta
A	95%	1.12	1.07
B	5%	1.75	0.0875

Beta = 1.158

6-9

Stock	Weight	Beta	Weighted beta
A	10%	1.5	0.15
B	15%	-0.5	-0.075
C	25%	1.25	0.3125
D	50%	0.75	0.375

Beta = 0.7625

RRR = $-(14-8) * .7625 = 12.10\%$

6-10

Stock	Weight	Beta	Weighted beta
A	95%	1.1	1.055
B	5%	0.9	0.045

Beta = 1.11

Beta for 95% o Stocks = $1.12 - 0.05 = 1.055$

Using the Beta calculated and the beta for the newly added stock:

Stock	Weight	Beta	Weighted beta
A	95%	1.12	1.055
B	5%	1.4	0.07

Beta = 1.125

6-11

RRRr = $7\% + (13\% - 7\%) * 1.5 = 16\%$

RRRs = $7\% + (13\% - 7\%) * .75 = 11.5\%$

Diff = $16\% - 11.5\% = 4.5\%$

6-12

	Stock A				Srock B				Weighted Avg.
Year	R	Weight	(R- \bar{R})	(R- \bar{R}) ²	R	Weight	(R- \bar{R})	(R- \bar{R}) ²	Return
1	-18.00%	50%	-29.30%	0.08585	-14.50%	50%	-25.80%	0.0666	-16.25%
2	33.00%	50%	21.70%	0.04709	21.80%	50%	10.50%	0.011	27.40%
3	15.00%	50%	3.70%	0.00137	30.50%	50%	19.20%	0.0369	22.75%
4	-0.50%	50%	-11.80%	0.01392	-7.60%	50%	-18.90%	0.0357	-4.05%
5	27.00%	50%	15.70%	0.02465	26.30%	50%	15.00%	0.0225	26.65%
	56.50%			0.17288	56.50%			0.1727	

Stock A: $\bar{R} = 11.30\%$ $\sigma^2 = 0.17288 / (5-1) = 0.04322$ SD (σ) = 20.79% CV = 1.84	Stock B: $\bar{R} = 11.30\%$ $\sigma^2 = 0.172674 / (5-1) = 0.0432$ SD (σ) = 20.78% CV = 1.84
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$$R_p = 11.30\%$$

$$R_{AB} = 0.88$$

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \sigma_A \sigma_B R_{AB}}$$

$$\sigma_P = \sqrt{0.0405}$$

$$= 20.13\%$$

$$CV_p = 1.78$$

6-13